SPECULATIVE BUBBLES, DEPRESSION AND THE MONETARY POLICY IN JAPAN*

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Abstract

This paper analyzes the cause and the characteristics of the speculative bubbles which occurred in the late 1980s in Japan and draws lessons for the monetary policy. Using many comprehensive data and graphs, it explains that depression in the 1990s in Japan, following the burst of speculative bubbles in the 1980s, is a classical example of Irving Fisher's "Debt-deflation theory of great depression." Concern by the monetary authorities to rapidly appreciated yen exchange rate has been a major factor for an easy money policy since the early 1970s. As a result of this policy, Japan has suffered twice from the same mistakes, once in the early 1970s and again in the mid 1980s. The U.S. government, based on arguments as to the "sustainability" of the dollar, placed pressure on Japanese monetary authorities to pursue low interest rate policies. This is a clear example of the failure of the "international policy coordination" which pursued an objective that was not warranted by either established theory or evidence. Financial deregulation continuing during this period encouraged financial institutions to extend loans secured by real estate, which caused further increases in land prices. Greatly reduced import prices due to exchange rate appreciation and dropped crude oil prices explain why only the asset prices increased while CPI remained stable.

Introduction

Following the burst of speculative bubbles in the early 1990's, the Japanese economy has been suffering its most severe depression since World War II. All Japanese financial institutions have large amounts of bad loans which threaten their stability and even the stability of the financial market. Immediate crisis management and drastic institutional reform are needed in order to ensure long-term financial market stability. Why did this situation come about? It is most important to find out the cause of the tremendous turmoil, to learn lessons from it, and to construct a new policy management method and institutional reform.

Speculative bubbles during the process of financial deregulation, however, have not been restricted only to Japan. Almost all developed countries have experienced similar financial market fluctuations. Rises in bank loans, in stock prices, and in real estate prices were more or

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less common for all developed countries in 1980's. In Germany, however, which already had a universal banking system and followed a restrictive monetary policy, the problem were far less severe. The German experience provides us with an important model for the rest of the world.

In the following, we analyze problems of the monetary policy and the monetary system which caused such serious difficulties, especially in Japan. In section 1, we introduce a debt-deflation theory of great depressions. In section 2, we take a brief look at the effects of the financial deregulation on the bank behavior in 1980's. In section 3, we examine the role of easy money policy and the appreciation of the yen exchange rate as the principal causes of speculative bubbles. In section 4, we explain why only asset prices rose while other measures of inflation remained stable. In section 5, we point out the international policy coordination as an important cause of current serious depressions in Japan.

Section 1: Debt-Deflation Theory of Great Depressions

In 1933, Irving Fisher published a paper entitled "The Debt-Deflation Theory of Great Depressions" which perfectly explains the current economic conditions in Japan. He described the process of great depressions as follows: prior to great depressions, new opportunities to invest at enormous prospective profit become available as a result of new inventions, new industries, new development or new resources. Large scale investments are financed by large amounts of borrowing which create large amounts of debt. Then, when some shock occurs to reduce confidence in those profit expectations, asset sales are initiated to repay the debts. Debt liquidation leads to distress selling and to contraction of deposit currency as bank loans are repaid. The price level and velocity of circulation drop. There is a still greater fall in the business net worth and business profits. A reduction in output, trade, and employment occurs. Business losses, bankruptcies and unemployment lead to pessimism and loss of confidence, which in turn lead to hoarding and even greater slowing down in the velocity of circulation. Banks stop lending to protect themselves and the currency falls further. The nominal interest rates and interest rates on safe loans fall, but real interest rates and rates on unsecured loans rise. This process is repeated and bank-run, bank failure, hoarding, bankruptcies, and further distress selling and asset price reductions follow, leading to great depressions. This is the process common to all great depressions.

The point of Fisher's argument is that the problem is not in the over-investment or over-speculation, but in the over-indebtedness. When investments and speculations are financed by one's own capital, they do not lead to serious depressions if they fail. Big profit opportunities created by new inventions, new industries, new resources, developments of new land and markets trigger over-borrowing. Fisher said, "Easy money is the great cause of over-borrowing. When an investor thinks he can make over 100 per cent per annum by borrowing at 6 per cent, he will be tempted to borrow, and to invest or speculate with borrowed money. This was a prime cause leading to the over-indebtedness of 1929. Inventions and technological improvements created wonderful investment opportunities, and so caused big debts. Other causes were the left-over war debts, domestic and foreign, public and private, the reconstruction loans to foreigners, and the low interest policy adopted to help England get
back on the gold standard in 1925."¹ This correctly describes the situation of the Japanese economy 60 years later, if we replace "1929" with "1990", "the left-over war debts, domestic and foreign, public and private, the reconstruction loans to foreigners" with "expansion of capital markets due to the financial deregulation and the increased competition for lending among financial institutions", and "policy adopted to help England to get back on the gold standard in 1925" with "international policy coordination in the late 1980's"

Fisher notes the start of over-indebtedness for the 1837 crisis as lucrative investment opportunities from developing the West and Southwest in real estate, cotton, canal building, steamboats, and turnpikes, opening up each side of the Appalachian Mountains to the other. The exploitation of railways and western farms initiated the 1873 crisis. For the Japanese economy in the 1980's, the starters of over-indebtedness were real estate development in large cities, big investment opportunities created by technical progress and new product developments. Fisher also points out that the "debt-bubbles" expand bigger and faster when the starter investment opportunities creates non-productive debts. The speculation in land during the late 1980's in Japan is the prime example.

In order to recover from depressions, Fisher proposed the reflation policy by increasing the money supply and raising prices to the level at which the original contracts were made. The recovery policy under President Hoover were well started by the Federal Reserve open-market purchase which revived prices and business from May to September 1932. But, that policy was not continued, and the recovery was stopped. In Japan, real estate prices are still falling and there are no clear prospects of recovery. According to Fisher, large scale open-market purchases and measures to revive land prices are needed.

Following to Fisher's theory, two things have to be done. First, to identify the cause of over-indebtedness in the late 1980s. And second, learn lessons for monetary policy and financial system in order never to repeat the same mistakes. In the following, we will discuss several problems related to the speculative bubbles in Japan, examine the cause, and extract lessons from our experience in 1980's.

**Section 2: Financial Deregulation and the Accumulation of Assets and Debts.**

**Emergence of the Debt Bubbles**

The most prominent characteristics of the Japanese financial market in the latter half of 1980's was a rapid increase of fund raising with low interest rates through capital markets under the progress of financial deregulation. Fig. 1 to 5 show the balance and the ratio of financial assets and debts in the corporate sector, large corporation, and individual sectors, respectively. These figures highlight the enormous increase of fund raising from capital markets. As shown in Fig. 3, the main reason for the increase was increased long-term fund raising from capital markets and reduced share of bank borrowings by large corporations. This was brought about by an increased fund raising through equity issue when stock prices were very high and the emergence of new capital markets such as commercial papers, foreign debts.

¹ Fisher (1933), p. 348.
FIG. 1. FINANCIAL ASSETS OF CORPORATE SECTOR

(A) Asset Balances

(B) Asset Composition
FIG. 2. FINANCIAL DEBTS OF CORPORATE SECTOR

(A) Debt Balances

(B) Debt Composition

Source: Economic Statistics Annual, Bank of Japan
FIG. 3. FINANCIAL DEBTS OF LARGE FIRMS

(A) Debt Balances

(B) Debt Composition

Source: Financial Statements of Incorporated Business Annual, Ministry of Finance,
Large firm = Capital over 1 billion yen
FIG. 4.  FINANCIAL ASSETS OF HOUSEHOLD SECTOR

(A) Asset Balances

(Trillion yen)

1,000

Securities
Insurance
Trust
Time deposits
Demand deposits
Cash & Currency

75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91
(End of year)

(B) Asset Composition

(End of year)

Source: Economic Statistics Annual, Bank of Japan
FIG. 5. **FINANCIAL DEBTS OF HOUSEHOLD SECTOR**

(A) **Debt Balances**

(B) **Debt Composition**

*Source: Economic Statistics Annals, Bank of Japan.*

FIG. 6. **FUNDS RAISED IN THE CAPITAL MARKET**

*Source: Bank of Japan, (1992)*
Due to this enhanced fund raising, as shown in Fig. 7, corporate holdings of liquidity on hand {(cash, deposits + securities)/monthly turnover} increased rapidly after 1985 and even exceeded the level reached in 1972–73 after which an enormous inflation in the mid 1970s occurred. Compared with this magnitude, the growth rates of both the money supply and bank loans did not increase as much, even though these rates were over 10% and much higher than the real GNP growth of around 3–6%. As will be discussed later, the monetary authority’s belief that the CPI was stable and that the money growth rate was not especially high, enabled the prolonged easy money policy which eventually caused the speculative bubbles in the late 1980’s. At the same time, the enormous increase of securities balances was another very important factor that caused the speculative bubbles in asset prices.

Supported by soaring stock prices and historically the lowest interest rate at that time, firms raised more funds than they needed for their capital investments thereby increasing their debts and investing in assets which had very high prospective rates of return. These assets
included Certificates of Deposit and foreign currency deposits which offered higher interest rates due to the financial deregulation of the 1980s, free interest rate deposits for large deposits after 1985, financial commodities which benefited from the soaring stock prices, special money trust and fund trusts, and real estate investments. This kind of corporate behavior contributed to a further increase in all these asset prices. (See Fig. 8–10.)

An important fact that we can see in Fig. 8–10 is that an increase in stock and real estate prices which occurred during the period of 1972–73 was followed by enormous inflation within one or two years. When these asset prices dropped after the inflation of mid 1970s, the problem of many bad loans became serious as well. Fortunately, the problem at that time was not aggravated as it is today due to the relatively rapid recovery of these asset prices. This brief history clearly indicates that a rise in asset prices has been one of the main indicators of inflation, at least over the past two decades. Therefore, the puzzle of the 1980s is why only asset prices increased while the CPI and the WPI were stable, on which we will discuss in Section 4.

The above mentioned phenomena of the 1980s, occurring during a process of deregulation, are due to the reduced cost of raising funds when increased channels of investment available offers returns higher than the interest costs of those raised funds. A typical example is the risk free profit opportunities available at that time such as depositing the money raised by Commercial Paper issue at a bank as a large time deposit which offered no-regulated higher interest rates than the CP rate. Why did financial institutions and investors supply such low cost funds?

Firms, especially large corporations, gained the power of fund raising in capital markets. So they started to raise long-term funds exclusively from capital markets. This movement greatly reduced the amount and the profitability of bank loans to large corporations. Because of the reduced demand for bank borrowings, banks which hoped to keep large corporations as
Fig. 9. Tokyo Stock Exchange Price Index Change Rate relative to the same month of the previous year

Fig. 10. Land Price Indices of the Six Largest Cities

their customers were forced to accept transactions with very low profitability. On the other hand, banks competed with each other to cultivate new alternative markets and increased their loans to medium and small-sized firms, individuals, and real estate industry. This tendency was common to all types of banks.

The outstanding examples were Long-term Credit Banks and Trust Banks who traditionally supplied long-term loans mainly to large-sized manufacturing industries. The share of manufacturing industries in the bank loans has been falling to the level of less than half over the past two decades due to the structural change of the economy. But, loans to medium and small-sized firms and individuals were difficult for them due to their small branch networks compared with commercial banks. Therefore, they increased short-term loans and loans to non-bank financial institutions. As a result, real estate loans through non-bank financial institutions as well as those by banks themselves, also increased rapidly.

All banks believed that, under a deregulated market, companies with high profitability and strong corporate ratings should be able to raise funds at a lower cost and that this would further contribute to earning larger profits. Based on this kind of common idea, all of them took an identical strategy to increase the scale of loans in order to reduce their operating cost ratios. This strategy of increasing scale, which naturally meant an increase in higher risk areas, was made possible by securing their loans with collateral of land which had ever increasing value due to soaring land prices. Everybody expected that land prices in Japan would never fall.

Collapse of the Debt Bubbles

The above noted accumulated assets have been shrinking since 1990 due to the tight money policy started in May 1989 which made the super-low interest rate condition disappear. The plunge of stock prices induced distress selling and real estate prices are continuing to fall. Trading in real estate market is very inactive and real estates has not worked as the collateral to repay loans and even to cover losses. Enormous amount of debts have become unrepayable bad loans, exerting pressures on banks raising suspicions about the stability of the Japanese financial system. Banks who became overly sensitive to loan risks have reduced loans. The money supply has dropped to the very low levels, and the monetary authority proclaims no power to control the money supply.

This situation is exactly what Fisher described as a great depression caused by debt-deflation. In the Japanese bank loan market, the real estate collateral plays an especially important role. Taking this point into account, the present situation can be explained by the theory of information as follows. The existence of collateral reduce agency costs between lenders and borrowers by enhancing the borrower's repayment capacity. When the real estate prices were high, the agency costs tend to be reduced, leading to larger amounts of loans. The dramatic rise in real estate prices in the 1980s greatly contributed to the increase of bank loans at that time.

After the unexpected plunge of real estate prices in the 1990s, the value of collateral

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3 For more details, see Shimizu (1992).
4 See Bernanke and Gertler (1986).
dropped relative to the amount of debts and the liquidation of real estates became difficult. This made a sharp rise in the agency costs and the credibility of borrowers disappeared abruptly. Real estate collateral is a very good means to secure individual bank loans when taken separately; in the case of large scale bad loans caused by severe depression, however, its function as a collateral is very restricted due to the fall in market values and limited liquidity.\(^5\) The effect of the rise in the agency costs was especially damaging to Japanese banks which largely depended on real estate collateral to reduce their cost of information production.\(^6\) This led to the fall in bank loans and to a rapid drop in the growth rate of money supply after 1990, showing negative values in 1992.

This rapid contraction in the money supply could further aggravate the depression. In order to avoid this, prompt policy measures to increase the money supply and to activate real estate transactions are needed. A large scale market purchase operations, reduction of the tax rate on profits from real estate transactions, land purchase using public funds, abolishment of taxes on security transactions, are such examples.

These policies should have much larger effects on economic activity than a simple income tax reduction by revitalizing the function of financial system. Once real estate transaction become active again at a new equilibrium price level, bad loans of financial institutions can more easily be accommodated. For the stability of the Japanese financial system which has a deep rooted tradition of collaterallized loan by land, the stability of real estate prices is indispensable. It may take more time to recover an equilibrium in the real estate market given the current excess supply situation. When real estate transactions are reactivated, it might be possible that the real estate price level falls further. Nevertheless, the write-off of bad loans through liquidation of real estate collateral has to be promptly pursued. Learning from the history of the S & L turmoil in the United States, Japan should make a prompt decision to solve the problem in order to avoid further aggravation of bank's bad loan problems.

Section 3: Appreciated Yen and the Easy Money Policy

Effects of Appreciated Yen Exchange Rate

It is evident that a fundamental cause of the speculative bubbles was the easy money policy adopted for a prolonged period of time since the early 1980s. The easy money policy was motivated in turn by such events as a depression due to the second oil shock in the early 1980s, the monetary policy intended to control exchange rates based on the Plaza Agreement in 1985, the following rapid and drastic appreciation of the yen exchange rate which amounted to 60% over a year period, and the international policy coordination adopted after the stock price plunge of 1987 in the United States. Japanese monetary policy since 1971 has been dominantly influenced by the exchange rate and the price of oil. Each time the yen exchange rate appreciated surpassing previous record levels, the basic pattern of the policy management has been to reduce interest rates in order to offset perceived adverse effects on economic

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\(^5\) Regarding to this risk of land as collateral, see Shimizu (1997a), ch. 3, sec. 3.

\(^6\) For a theoretical and empirical explanation, see Shimizu (1997a), ch. 4, sec. 2.
As seen in Fig. 11, there are three periods of drastic appreciation of the Japanese yen since 1971, marked by the shadow. First, from August 1971 to the end of 1972, the yen appreciated from 360 yen to 308 yen/dollar. During this period, the policy followed was a drastic increase of money supply and a reduction in the discount rate. This policy resulted in a drastic inflation during 1973-74 that was known as 'the fury prices'. Second, during 1976-78 when the yen appreciated from 280 yen to 180 yen/dollar level, there was a sharp reduction in the discount rate followed by a drastic fall interest rates. But, there was no serious inflation because money supply did not increase much at this time. Third, during the period after the Plaza Agreement in 1985 to May 1989, the yen appreciated from 250 yen to 120 yen/dollar. The discount rate dropped to the lowest level in history of 2.5% and the money supply (M2 + CD) grew by about 10%. This prolonged easy money policy caused the asset inflation.

Two out of these three cases of easy money policy in response to the appreciated yen resulted in enormous inflations and caused subsequent serious depressions. A reason for this easy money policy in response to the appreciated yen exchange rate is a negative image of the yen appreciation and a consensus for easy money policy in response to the yen appreciation in Japan. Japanese people have long been taught and believe that the only way for Japan, which lacks natural resources, to grow is the expansion of export through manufacturing high value added products using imported raw materials. In the high growth period of the 1950s to the 1960s, the main obstacle for growth was the shortage of foreign exchange. A tight money policy was forced into effect because of the so called “ceiling of foreign exchange reserves". As shown in Fig. 12-A & B, however, the share of exports and imports in GNP are only 8–10% and 6–7%, respectively. Large current account surpluses and foreign asset holdings are strongly accused by other countries as being the highest in the world. The economic environment has changed completely, but only a few people realize what it really means.

A depreciated yen means that an international evaluation of the fruit of the work of Japanese people is low. Even though an individual company will always seek to sell its products
at higher prices, it is strange that Japan, as a country, has kept following a policy to prevent appreciations of yen. The reason exists in the famous principle of political pressures. The demerits of yen appreciation accrue uniquely and suddenly to export industries which include large corporations. This type of event can easily attract public attention and a consensus to prevent yen appreciation as well as a political pressure to do so are easily formed. On the contrary, the merits of yen appreciation disperse widely over a long period of time among all people and firms who are using imported products including travelers to foreign countries, which are not easily noticed. The merits for each individual and firms are too small to justify an effort to create a political pressure to pursue a policy aimed at yen appreciation. It is partly true that the merits of yen appreciation have not reached consumers due to the inefficiency in
the Japanese retail distribution system. But, profits due to yen appreciation accrue immediately somewhere in the Japanese economic system without fail, leading to greater profits for import industries and larger real income for everybody.

Fig. 13 shows the movements of the exchange rate and the import price index (IPI). The IPI increased markedly twice in 1973–74 and 1979–80 because of the increased oil prices at the first and second oil shocks. In both cases, the effect of the soaring oil prices was greatly mitigated by the yen appreciation which happened immediately before those oil shocks. Before the first oil shock, the exchange rate appreciated from 360 yen to 280 yen/dollar, and 280 yen to 180 yen/dollar before the second oil shock. If these yen appreciation did not occurred, the effects of two oil shocks on the Japanese economy would have been far more serious. The merits of two cases of yen appreciation were not fully recognized by the public because of the offsetting effect of increased oil prices.

The yen appreciation after the Plaza Agreement in 1985 was the largest in history and the first which brought about enormous benefit without offsetting factors. Over the period of one year, the IPI was halved. The total amount of imports and factor income payments to overseas was about 41 trillion yen in 1984. Due to the 60% appreciation of the yen over one year since 1985, exchange rate profits that amounted to over 20 trillion yen and 8% of GNP were accrued to the Japanese economy. During the period of the speculative bubbles in the late 1980s, compared with the years before, real national income increases of this magnitude accrued every year to the Japanese economy. Fig. 14–A & B, show the amounts of imports in terms of yen and dollar respectively and the exchange rate. While the imports in terms of yen dropped greatly after 1985, the imports in terms of dollars were unchanged until 1986 and increased largely after 1987. After the collapse of the bubbles in 1990, imports in terms of
dollars remained constant, while the imports in terms of yen declined, reflecting further yen appreciation.

Soaring asset prices in the late 1980's cannot be fully explained without taking these large 'real' income growth factors due to the yen appreciation into account. This real income growth can be identified as a typical rise in temporary income, because the exchange rate forecast is difficult. According to empirical researches on the rational expectations and the permanent
income hypothesis which were made actively in 1980's, 70–80% of temporary income is saved.\(^7\) Therefore, this temporary real income rise led mainly to increased savings rather than consumption, and especially in the form of savings which had the highest expected returns, namely investments in land and stock market. This rise in real income accrued most heavily to firms who have especially high import ratios, industries such as petroleum, electric power and gas.\(^8\) It is natural that temporary profits accrued to specific economic agents are invested in assets which have the highest expected returns.

**Anti-Depression Policy**

One often cited rationale for an easy money policy in response to yen appreciation is to prevent export reduction and counteract its adverse effects on economic activity. In the dynamic real economy where continued rapid technical progress and new product developments are essential, there is no simple relationship between yen appreciation and exports. In fact, Japanese exports have kept increasing over the last quarter of a century while the yen appreciated from 360 yen to 100 yen/dollar. The Japanese firms consistently developed new products with higher values added resulting in increased current account surpluses. This history suggests that export industries have an ability to adjust quickly to changes in the exchange rates.

Japanese export industries have made significant efforts to adjust to rapid yen appreciation since 1985, such as expansion of domestic demand, shifting production abroad, greater capital

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\(^7\) For a brief survey of a series of research on this topic, see Shimizu (1997b), ch. 8.

\(^8\) As shown in Table A–1, due to the yen appreciation after 1985 the input and output price indices for general manufacturing industry fell side by side. For petroleum refinery products as an example, however, the output prices did not fall as much as the input prices. After 1985, the input prices fell nearly to the half of the output prices, indicating large retained profits in this industry.

**Table A–1. Input and Output Price Indices**

<table>
<thead>
<tr>
<th>Sector</th>
<th>General Manufacturing Industry</th>
<th>Petroleum Refinery Products</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Input 1,000.00</td>
<td>Output 1,000.00</td>
</tr>
<tr>
<td>Weight in General</td>
<td>66.22</td>
<td>53.81</td>
</tr>
<tr>
<td>Manufacturing Industry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(F.Y.1982)...</td>
<td>104.3</td>
<td>117.5</td>
</tr>
<tr>
<td>(1983)...</td>
<td>101.6</td>
<td>99.8</td>
</tr>
<tr>
<td>(1984)...</td>
<td>101.6</td>
<td>101.2</td>
</tr>
<tr>
<td>(1985)...</td>
<td>98.0</td>
<td>91.8</td>
</tr>
<tr>
<td>(1986)...</td>
<td>87.1</td>
<td>37.2</td>
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<tr>
<td>(1987)...</td>
<td>85.4</td>
<td>40.5</td>
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<tr>
<td>(1988)...</td>
<td>84.9</td>
<td>32.1</td>
</tr>
<tr>
<td>(1989)...</td>
<td>87.8</td>
<td>39.9</td>
</tr>
<tr>
<td>(1990)...</td>
<td>89.0</td>
<td>48.7</td>
</tr>
<tr>
<td>(1991)...</td>
<td>88.0</td>
<td>40.6</td>
</tr>
</tbody>
</table>

intensity, etc. According to the "Survey Study on the Corporate Behavior" conducted by the Economic Planning Agency of Japan shown in Fig. 15, the break-even exchange rate dropped rapidly from 207 yen in February 1986 to 175 yen in January 1987, to 141 yen in 1988, and further to 128 yen in 1989.\(^9\) Since this survey study is conducted once a year, it indicates that the adjustments by export firms to changes in exchange rate were made very rapidly without meaningful lags. Easy money policy as an anti-depression measure created enormous inflation and subsequent serious depression, by failing to recognize the high adjustment capacity of export industries and the beneficial effects of real income growth from lower raw material prices resulting from yen appreciation.

As long as a large current surplus continues, "depression by yen appreciation" is a temporary problem for only some export firms which cannot adjust to exchange rate appreciation. For this problem, the right approach is to encourage structural change in specific industries or firms on a selective basis, and to give supports to industries that suffer from drastic impacts from the view point of social security. Monetary policy should never be used for this purpose, because it affects all economic sectors.

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The Interest Rate and the Exchange Rate

Another rationale for the easy money policy in response to the yen appreciation is to prevent the rapid and further yen appreciation by suppressing capital inflow through reduced interest rate. This is exactly the reason why a low interest rate policy was continued after the US stock price plunge in October 1987, based on international policy coordination intended to prevent the simultaneous world depression after the triple plunge of stocks, bonds and dollar exchange rate. Suzuki (1992) has a detailed explanation of the monetary policy management in the 1980s. It clearly describes the facts that the monetary policy was used to adjust the interest rate differential in an effort to control the exchange rate.

In reality, however, international capital movements are influenced by many factors in a complex way and cannot be controlled only by adjusting the interest rate differentials. The relationship between the exchange rate and the interest rate differential is a problem which is not yet clarified both theoretically and empirically. The argument that a fall in the domestic interest rate or a rise in the foreign interest rate would depreciate the country's own exchange rate is correct, provided that only the domestic interest rate falls, keeping the spot-forward spread constant. When the domestic interest rate changes, however, the spot-forward spread moves simultaneously through an arbitrage process, thus nullifies the condition necessary for such an argument to hold.

According to the monetary approach, a fall in the domestic interest rate creates excess demand for the country's own currency by raising the demand for it, and a fall in the domestic price level, leading, instead, to an appreciation of its own currency. This result, which holds in the long-run based on the purchasing power parity, could hold even in the short-run if expectations in the foreign exchange market are rational. Concerning this problem, there is, of course, another argument whether the price level is flexible or not. There are two conflicting empirical evidences about the validity of the monetary approach; therefore, the relationship between the exchange rate and the interest rate is still far from being settled.

Fig. 16-A & B, show the Japan-US real interest rate differential and the long-term and short-term capital balances, respectively. Both for the long-run and the short-run, the capital balances fluctuate very irregularly over a very short period of time. No systematic relationship between the capital balances and the real interest rate differential can be observed. A monetary policy management which tries to affect on the capital movements and the exchange rate, both of which are sensitive to non-economic factors like international political situations and the announcements of politicians, could most probably result in unexpected turmoil. As long as a large current account surplus continues, appreciation of the yen exchange rate is inevitable. The history of the Japanese monetary policy management from the Plaza Agreement to the emergence and the collapse of the speculative bubbles described by Suzuki (1992) clearly shows that the discretionary monetary policy intended to control the exchange rate based on the international policy coordination created unexpected adverse effects due to so many unforeseen factors.

According to Milton Friedman, monetary policy changes will have an impact on production in 6–9 months and 6–9 months thereafter on prices, thus 12–18 months for nominal
The risk of using the monetary policy to control the exchange rate which is a short-run and very subtle problem, are theoretically well known. But, the monetary authorities that participated the international policy coordination, however, seems to have a different view about the role and the function of the monetary policy. The emergence and the

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10 See Freidman and Schwartz (1963).
collapse of the speculative bubbles does not mean that monetary policy is powerless. It failed to achieve legitimate targets because it was used erroneously to achieve a wrong target of controlling the exchange rate in the short-run. The Japanese experience in 1980's clearly shows how powerful the monetary policy was.

The drawback of a discretionary policy is theoretically well known. In the real world, however, monetary authorities are very susceptible to public opinions and political pressures. Whenever big problems occur, errors in the policy management are blamed ex post. Notwithstanding, exactly the same mistakes were committed repeatedly in the past, as described in the Section 1. Germany, however, learned from her tragic history initiated by the hyper-inflation after the World War I, avoid any serious inflation by sticking to a conservative monetary policy. We need to learn from our terrible experience of asset inflation in the 1980s and to recognize the limitation of the monetary policy. We have to create a public opinion based on realistic expectations of what monetary policy can and should achieve. As Fisher pointed out, easy money policy is the most important cause of excessive debt and subsequent great depressions. Monetary policy is very powerful. Almost everybody likes to have an easy money policy to take advantage of big profit opportunities. Only a few people, however, realize the huge cost which has to be paid later. The fundamental lesson we should learn is that monetary policy should not be used to control business fluctuations, especially "depression due to yen appreciation."

As long as monetary policy is managed on a discretionary basis, anytime and anywhere, then public opinion and political pressure will always demand easy money policies to deal with economic shocks. The president of Bank of Japan especially, who holds centralized decision making powers, must deal constantly with tremendous pressure from many different sources. Realizing this fact, the Bank could overreact or underreact to volatile public opinion (reputation and pressure at that time), which could lead to a "time inconsistency problem" in monetary policy management. Legitimate monetary policy has to be independent from political pressures. This bitter experience has led Japan to legislate the new Bank of Japan Law that strengthened its independence. The repeated inflations of the 1970s and the 1980s are essentially attributable to this fact.

Section 4: Inflation and the Money Supply

An important reason for a prolonged easy money policy in the 1980's was the stable price level which, according to Bank of Japan, did not justify tightening the monetary policy to prevent inflation. Okina (1993) said that "Bank of Japan achieved its goal of price stability measured in terms of the CPI nearly 100%, because there is neither inflation nor deflation since mid 1980's until now." "The only problem in the policy management at that time was that Bank of Japan was not convinced that the monetary policy has to be changed in response to the soaring land prices. As a result, it failed to recognize the fact that the excessive money supply already put fire on the soaring land prices. Thus, it failed to revert to a tight money policy." Mr. Mieno, the former president of Bank of Japan, confessed that "the most important lesson is that the monetary policy should have carefully watched not only the CPI

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and WPI, but also asset prices.\textsuperscript{12}

The stable movement of the CPI and WPI in the late 1980s in front of the high growth in M2 + CD led some people to question the relationship between the money supply and CPI. This created an idea that the money supply is not a reliable leading indicator of the price level. As mentioned by Mr. Mieno, the policy target should take into account not only the general price level, but also the land prices explicitly. When this idea became well understood, Bank of Japan started to announce a new price index called the “Service Price Index” taking the asset price movements into account. Bank of Japan further cast skepticism about a monetary policy which uses money supply as an intermediate target.\textsuperscript{13} The skepticism is affected also by

\begin{table}[h]
\centering
\caption{Crude Oil Prices and the Yen/Dollar Exchange Rate}
\begin{tabular}{|c|c|c|c|c|}
\hline
\hline
Crude Oil Prices (Dollar/Barrel) & 29.4 & 28.1 & 16.4 & 17.8 \\
\hline
The Exchange Rate (Yen/Dollar) & 237.6 & 238.5 & 168.5 & 144.6 \\
\hline
\end{tabular}
\end{table}

\begin{table}[h]
\centering
\caption{The Import Price Indices}
\begin{tabular}{|c|c|c|}
\hline
Group & All Commodities & Petroleum, Coal \\
 & & & Natural Gas \\
\hline
Number of Items & 184 & 11 \\
\hline
Weight & 1,000.0 & 279.0 \\
\hline
(C.Y.1973)... & 57.6 & 29.3 \\
(1974)... & 96.5 & 85.5 \\
(1975)... & 103.6 & 102.5 \\
(1976)... & 109.0 & 110.1 \\
(1977)... & 104.0 & 105.8 \\
(1978)... & 85.8 & 85.7 \\
(1979)... & 110.4 & 113.4 \\
(1980)... & 159.8 & 196.3 \\
(1981)... & 162.4 & 215.3 \\
(1982)... & 175.2 & 238.1 \\
(1983)... & 161.5 & 210.0 \\
(1984)... & 156.0 & 199.7 \\
(1985)... & 152.2 & 200.4 \\
(1986)... & 97.7 & 101.0 \\
(1987)... & 89.7 & 88.4 \\
(1988)... & 85.6 & 73.9 \\
(1989)... & 92.0 & 80.8 \\
(1990)... & 100.0 & 100.0 \\
(1991)... & 91.8 & 90.3 \\
(1992)... & 86.2 & 80.8 \\
\hline
\end{tabular}
\end{table}

\textsuperscript{13} In his interview article, Kinnyu-zaisei, May 14, 1993, reprinted in Okina (1933), p. 166.

\textsuperscript{13} See Bank of Japan (1992).
arguments about what is the appropriate definition of money, as discussed in the U.S. But, at least in Japan, financial innovations of the magnitude which destroy the usefulness of the money supply have not yet occurred. Before we discuss about the usefulness of the money supply as an intermediate target, we need to understand the specific economic environment in the late 1980s.

In order to understand the reason why the CPI was stable during that time, we should recognize the effect of the yen appreciation in 1985. Table 1, 2, and Fig. 17 show what happened to the exchange rate and crude oil prices. From the late 1985 to the early 1987, yen/dollar exchange rate appreciated about 60% while the dollar price of crude oil dropped about 40%, reducing the yen price of crude oil to one third of its beginning value. Dollar oil prices increased to 3.2 times with the first oil shock, and 2.7 times with the second. A price drop to the level of one third is equivalent to the two oil shocks in magnitude, but in the opposite direction, a so called “reversed oil shock.” Crude oil is the single largest imported good in Japan. Therefore, as shown in Fig. 18, IPI was halved and the WPI was considerably influenced, but the effect on the CPI is not clear in this figure. Fig. 19 shows the change rates relative to the same month of the previous year in IPI, CPI and WPI respectively in the same measure. Fig. 20 shows the same thing with IPI and WPI in the left measure and only CPI in the right measure. These figures clearly illustrate that the inflation measured in terms of CPI is also greatly affected by the price of imports.

Fig. 20 shows that the inflation rate in terms of CPI dropped rapidly from 1981 to 82 in response to IPI’s drop and remained rather stable until 1985. After 1985, it fell further due to the reduced crude oil price and the appreciated yen, reaching negative values in 1987. In 1987, it again started to rise until 1991 and resumed its decline in 1991 when the effect of the burst of the bubbles became apparent.
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FIG. 18. IPI, CPI, AND WPI

FIG. 19. THE RATE OF CHANGE IN IPI, CPI, AND WPI RELATIVE TO THE SAME MONTH OF THE PREVIOUS YEAR
Nishikawa (1990) simulated the effect of the lower crude oil prices and the appreciated yen on the general price level. According to him, the 60% drop in crude oil prices from 1981 to 1988 reduced the input price index by 9 percentage points, the output price index by 5 percentage points, and the CPI by 2 percentage points. The nearly 100% yen appreciation from 1985 to 1988 reduced the input price index by 13 percentage points, the output price index by 7 percentage points, and the CPI by 4 percentage points. He also examined price and related cost movements in the late 1980s, showing that the price indices of input and output reduced in line with the theoretical predictions, indicating a smooth exchange rate profit transfer among firms. On the contrary, the theoretical value and the actual value for the CPI were not in line, going in the opposite direction after 1985 as shown in Fig. 21. This suggests that the actual CPI rose markedly while the cost levels were falling.

Nishikawa (1990) pointed out several possible reasons for these price movements, such as growth of entirely new services, increased service industry profit margins, and strong personal consumption expenditures. Although not mentioned explicitly, if we take out the impact of cost reduction from yen appreciation from 1987 to 1990, these price movements are clear evidence of inflation of a considerable magnitude. The monetary authority, looking only at the superficial CPI, did not recognize the massive inflation which was underway from 1987.

This point aside, the assertion that there was no need to worry about inflation in the late 1980s because the CPI was stable is not necessarily correct, because the CPI followed a similar pattern in the major developed countries. Fig. 22, 23 & 24 show the CPI, the discount rate, and the call rate (Federal Fund Rate for the U.S.) for Japan, Germany and the U.S. In all three economies, inflation rates fall from 1980 to 1983, increased slightly in 1984, then fell again from 1985 to 86. When it began to increase in 1987, following international policy coordination of which more will be said later, the U.S. increased its discount rate in September 1987. Germany began its discount rate in July 1987 and followed by successive increases through
Fig. 21. The Estimated and the Actual Values of CPI

Source: Nishikawa, (1990)

Fig. 22. The CPI Change Rate, the Discount Rate, and the Call Rate in Japan
Fig. 23. The CPI Change Rate, the Discount Rate, and the Call Rate in Germany

Fig. 24. The CPI Change Rate, the Discount Rate, and the Federal Funds Rate in the U.S.
FIG. 25. M$_2$+CD GROWTH RATE AND THE CALL RATE IN JAPAN

FIG. 26. M$_3$ GROWTH RATE AND THE CALL RATE IN GERMANY

1993. On the other hand, Japan began increasing its discount rate only as late as in May 1989. Similar contrasts are seen in the management of the money supply. Fig. 25, 26 & 27 show money supply growth rates and the call rate in Japan, Germany and the U.S. From 1987 to 1990 when the CPI started to going up, Germany steadily reduced the money supply growth rate. This has been on the increase since the sudden and temporary increase of the money supply at the time of the unification of Germany in 1990. In the U.S., the money supply growth rate has been going down steadily with some fluctuations after a large reduction of the money growth in 1987. Japan, however, kept its money supply growth rate high through 1990, and
began a reduction only after the negative effects of the burst of bubbles became widely apparent. Japan did not deviate from its easy money policy until late 1990 (see Fig. 28).

The U.S. and Germany, both having adopted an orthodox monetary policy of reducing money growth in response to increasing prices, avoided the serious inflation which Japan had. Considering this contrast, it seems difficult to justify the judgment that "the general price level remained stable", since the CPI in Japan showed exactly the same movement with those in Germany and the U.S.
Recently, some people argue that the money supply growth rate is no longer an appropriate policy target. Looking at the 1980s, however, there can be no disagreement that 10–12% money growth was too high in the face of 2.8–6.2% real growth. In other words, as far as these concrete figures are concerned, the money supply growth rate was a very useful target. The heart of the policy problems is why this obvious target on which everybody agrees could not be correctly implemented. Refuting the usefulness of the money supply targeting without mentioning concrete numbers easily divert people’s attention from the focal point, letting the monetary authority evade its responsibility. In short, the money growth rate may not be a good indicator to fine tune the economic activity, but it is the most important target in avoiding major inflation and in providing a stable economic environment.

Therefore, the speculative bubbles in the 1980s, their collapse and the subsequent depression in the 1990s all stem from simple mistakes in policy judgment, and have little to do with financial deregulations or the lost relationship between the money supply and the CPI. In order to understand why these mistakes were made, we need to look at the international policy coordination which underscored monetary policy management in the late 1980s.

Section 5: International Policy Coordination

An important characteristic of Japanese monetary policy in the late 1980s was the great impact of the idea of international policy coordination. The principal elements were the Plaza Agreement of September 1985, the Louvre Accord in February 1987, and the policy coordination after the “Black Monday” in October 1987 in the U.S. Since the Plaza Agreement, so far unofficial G5 or G7 meetings started to be held officially and statements were announced summarizing the agreements. Namely, the agreement to seek cheaper dollar in the Plaza Agreement, the coordinated intervention to boost up the dollar in the Louvre Accord, and the coordinated interest rate reduction to stop the simultaneous world depression after “Black Monday.” Ishii (1990) provides a detailed explanation about how the idea of the policy coordination developed and how policy coordination is conducted.

According to Ishii (1990), in 1985, American policy makers became convinced that the price of the over-valued dollar could not be sustained and very concerned about an abrupt drastic fall in the dollar exchange rate (the sustainability problem). Then, an idea was created to use coordinated macroeconomic policy of major countries to prevent a catastrophic dollar price plunge. That is, since the U.S. budget expenditure reduction has a deflationary impact on the world economy, other countries have to increase budget expenditure to offset the negative impact. Once the dollar depreciates, Japan and EC countries need not worry about the imported inflation. So, it is desirable for Japan, the U.S. and EC countries altogether to raise their economic growth through a coordinated easy money policy. The scenario was as follows: when the U.S. reduces the budget expenditures, Japan and EC should expand their budget expenditures. All countries should then follow an easy money policy which will lead to a gradual fall in the price of dollar. World interest rates would then be reduced, leading to world economic growth without inflation and to the correction of foreign imbalances among developed countries. This policy coordination was thought to benefit to all participants, because it offset the deflationary effect of the U.S. budget expenditure cut and increased world
Control over interest rate differentials between the U.S. and Japan and between the U.S. and the EC was the principal element of coordination in order to influence international capital movements along with cooperative interventions into foreign exchange markets. Long-term interest rates were the operating target for this purpose, while adjustments in short-term interest rates and the discount rate were used as policy instruments. According to Okina (1993), Bank of Japan firmly believes that it cannot control the money supply. So, it is not likely that the money supply was used as an explicit policy instrument.

More precisely, starting with the Plaza Agreement, from September to the end of 1985, the policy to suppress capital inflow to the U.S. was put into effect in order to lower the dollar exchange rate. For this purpose, coordinated intervention and a reduction in the interest rate differentials by reducing the long-term interest rates and raising the long-term interest rates in Japan and EC countries were conducted. But, in early 1986, the fall in the dollar rate was much larger than the monetary authorities expected. Then, Japan and EC countries turned the policy to reduce interest rates in order to prevent the deflationary effects of their own overly appreciated currencies. Nevertheless, the speed of the interest rate reduction in the U.S. was faster than in Japan and EC, and the interest rate differentials continued to shrink, said to have led to a further drop in the dollar exchange rate. In February 1987, the Louvre Accord was reached in order to stop the dollar from falling, by having the U.S. increase interest rates while Japan and the EC reduce their interest rates to widen the interest rate differentials and to counteract the depression caused by the appreciation of their currencies. Yet again, after “Black Monday” in October 1987, Japan and EC were forced to continue their coordinated low interest rate policies to prevent simultaneous global depression.

As mentioned in section 2, an interest rate differential is not an effective way to control the exchange rate and it has unexpected effects on other parts of the economy. It is not clear how much of the fall in the dollar is attributable to the capital movement caused by an intended reduction of long-term interest rate differentials. We have already seen this fact in Fig. 11. From the beginning, there was a “sustainability problem” that initiated the idea of policy coordination. It is highly probable that the fall in the dollar was simply triggered by coordinated intervention aimed at a cheaper dollar, having nothing to do with the interest rate differentials. There is neither established theory nor clear evidence that control of interest rate differentials can make exchange rate move in a particular direction. Such attempts will most likely fail because of unexpected events. Control over exchange rates by a government is an impossible objective. Even if it may seem to be successful in the short-run, and even if international coordination is more powerful than a country acting alone, it is still an impossible target.

In hindsight, Japan delayed tightening its monetary policy because of the pressure of international coordination after the “Black Monday”, and out of fear that an increase in Japanese interest rates could trigger a collapse of the dollar leading to worldwide depression.

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14 Ishii (1990) notes that “this is a real benefit of policy coordination”, and “policy coordination from which we cannot expect such merits is nothing more than a political enforcement” (p. 38). At the same time, she says “In the case of the Plaza Agreement, leaders of these countries committed more deeply by expressing their willingness to sacrifice their short-run domestic targets to achieve international policy coordination” (p. 66).

15 Sachs (1998) claims that there is a relationship between the U.S.-foreign real interest rate differentials and the exchange rates, but a theoretical explanation is not clear.
This, on the contrary, caused the worst speculative bubbles and the subsequent serious depression in Japan. Yet in Germany, interest rates were raised as early as July and August 1988, which was in contradiction with the policy coordination at that time, but without serious inflationary effects. Then again in July 1993, Germany raised the interest rates at the risk of endangering the EMS framework.

Even though there has been considerable study on international policy coordination, there exists two sharply conflicting views. One side advocates the possibility of increased mutual economic welfare based on models that assume simple utility functions; the other side uses models showing the possibility of reduced economic welfare. There are compelling arguments that egoistic policy interventions become possible under the guise of international policy coordination. At present, the gap between theory and reality is too big to be reconciled. These conflicting two views are summarized by J. Tobin and M. Feldstein respectively.

"Coordination of macroeconomic policies is certainly not easy; maybe it is impossible. But in its absence, I suspect nationalistic solutions will be sought -- trade barriers, capital controls, and dual-exchange rate systems. Wars among nations with these weapons are likely to be mutually destructive. Eventually, they, too, would evoke agitation for international coordination." (J. Tobin, 1987, p. 68)

"I believe that many of the claimed advantages of cooperation and coordination are wrong, that there are substantial risks and disadvantages to the types of coordination that are envisioned, and that an emphasis on international coordination can distract attention from the necessary changes in domestic policy." (M. Feldstein, 1988, p. 3)

Tobin stands for policy coordination, yet his comments are not so positive. Looking at our experience since the 1980s we cannot help but think Feldstein is correct. It is difficult to object to a policy conducted under the altruistic banner of policy coordination. But the contents and prospective results of such a policy are almost always vague and obscure. In reality, a very discretionary policy which has no assurance of success is apt to be implemented with hopeful expectations. This raises a central bank independence problem from foreign governments. In this internationalized world, pressures from foreign government could be stronger than those from its own government.

The collapse of speculative bubbles in Japan is a good example of the failure of international coordination, because monetary policy pursued two impossible targets. Firstly, responding to foreign government requests, a highly discretionary monetary policy was used to achieve a short-run target which was not theoretically justified. Because of many unknown factors, even the effect of monetary policy on a domestic target is uncertain. How, at the same time, can monetary policy successfully pursue an international target which has an even greater degree of uncertainty. We do not have enough knowledge to do so.

Secondly, monetary policy tried to control the exchange rate. As explained earlier, monetary policy is not effective at controlling exchange rates. As long as a large current surplus exists, the legitimate policy is to accept free movement of the exchange rate and pursue policies which encourage structural changes of economic agents. In the days of the fixed exchange regime, it was argued that world trade would shrink under a flexible exchange rate system. In reality, no such things happened. When completely flexible exchange rates become common, economic agents will behave appropriately by adjusting to the new environment. The
Japanese policy in 1987 that tried to prevent yen appreciation while encouraging people to buy more imports to reduce trade surplus is contradictory. The role of the government is to provide a foreseeable economic environment so that economic agents can more easily adjust to structural changes.

It is not especially productive, however, to look at the lessons only as a failure of the policy makers at that time. The core of the problem stems from the fact that people expect more from the monetary authority than it can successfully deliver. Monetary policy is very powerful. Easy money has been a major cause of many great depressions throughout economic history. We do not have the knowledge that can use monetary policy to meet the needs of international coordination. We must eliminate the concept of using monetary policy to cope with so many different problems, like exchange rate control, anti-depression measures, controlling land and stock prices, international policy coordination, and maintaining financial market stability, among other things, to avoid making the same mistakes again. A completely new system of monetary policy management aiming solely at the price stability has to be established.

**Conclusion**

Speculative bubbles, collapses and subsequent depressions were phenomena repeated many times in history. The common, underlying cause is the adoption of easy money policy as elucidated by I. Fisher more than 60 years ago. Over the last two decades in Japan, monetary policy was used to achieve inappropriate targets such as control over business fluctuations or exchange rates. These mistakes are partly attributable, in turn, to people's over-expectations about the capabilities of monetary authority and the authority's response to those expectations.

The monetary authority's mistakes were motivated partly by the idealistic proposal of international policy coordination. International policy coordination was carried out based on the fallacious assumption that a discretionary policy is effective at achieving global objectives. International policy coordination turned out to be an obstacle for individual countries to pursue their own stable monetary policy and compounded the damage of discretionary policy worldwide. Moreover, policy management negotiations, the true contents of which are disclosed only years later, are conducted secretly by politicians. The negotiations are political and easily influenced by a rapidly changing political environment. Negotiations in the 1980s, it should be recalled, reflected Japan's comparatively weak political position. Living under the U.S. American military protection, Japan is obliged to accommodate initiatives which are perceived as vital to national interests of the U.S. This kind of policy management is inherently inconsistent with the needs of an independent central bank which must be free from political pressures.

Political pressures on macroeconomic policy are inevitable. The concepts of free trade, flexible exchange rates, and monetary policy based on rules are examples of historically and internationally created wisdom out of the repeated historical experience of the same kind.

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16 Regarding the failure in the early 1970s, Nakagawa (1981), who served as a policy maker in charge at that time, says "I believe that our failure is attributable to our excessive fear to the yen appreciation" (p. 64) and describes a strong political pressure toward easy money policy enforced by Prime minister Tanaka. (pp. 36–37).
These are devices to create stable economic environment by insulating economic policy from political pressures.

The most important policy instrument for economic stability is the money supply. Economic stability cannot be maintained by changing interest rates for short-term purposes. Monetary policy should be used only to control inflation. The policy of a stable money supply based on a transparent and widely-recognized policy rule is the primary tool a central bank can use to achieve independence from political pressure and to maintain stable economic growth.17

REFERENCES


REFERENCES IN JAPANESE


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17 The U.S. monetary policy is an example. Based on the continued low growth rate of money supply since the late 1980s, the U.S. monetary authority has obtained a reputation that it highly concerned about inflation. This clearly recognized policy rule has reduced the expected rate of inflation and contributed to its stable economic growth in the 1990s. See Shimizu (1996, 1997b, ch. 12, 13, 14.).


Nakagawa, Koji, (1990), *Taihenteki Kinyuseisakuron*, Nipponkeizai shinbunsha.


-------- (1997b), *Macro Keizaigaku no Shinpo to Kinyuseisaku*, Yuhikaku.